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Effect of surface properties of the UV laser irradiated steel cords on adhesion

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Steel cords like nylon or polyester cords are one of the most important component of tire in industry. The adhesion strength between these cords and the rubber depends on the surface properties of the cords which is the main component of tyres. Adhesion property can be varied by various modifications of surface of steel cords. One of various modifications of surface is roughen of the cord surface by irradiation. In our previous study, it has previously investigated the effect of surface properties of the UV-laser irradiated nylon cord on adhesion. In this study, steel cords which are the most important additives, are irradiated with UV excimer laser with different pulses and fluences and roughened with the effect of laser beam on the surface. The presence of the shaginess was examined via optic microscopy and then, adhesion properties of the natural rubber tyre after adding UV Laser beamed steel cords was

observed via measuring their tensile strengths. Maximum elongation load, stress at break, elongation at break, change of modulus properties with pulse and fluence are examined. The results showed that the load, stress, elongation and tension at break point is increased up to 300 pulse, and then decreased. Also modulus decreased up to 300 pulse and then increased.

Speaker Biography

Satilmis BASAN has completed his PhD at the age of 35 years from Hacettepe University and postdoctoral studies from Glasgow University, Department of Chemistry and Akron University, Department of Polymer Engineering. He is the Head of Department of Chemical Engineering, Hittite University, the Founder Dean of Faculty of Engineering, Hittite University, Editor in Chief, Journal of the Turkish Chemical Society, Section B: Chemical Engineering. He has published more than 26 papers in reputed journals.

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